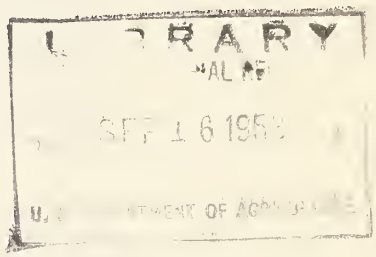
INVENTORY MANAGEMENT BY SELECTED RETAIL FARM SUPPLY CO-OPS AREA II



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FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE

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FARMER COOPERATIVE SERVICE

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Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, financing, merchandising, product quality, costs, efficiency, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

CONTENTS

HIGHLIGHTS

For this study, 11 retail farm supply cooperatives supplied information about their operations for 5 years -- 1951-52 through 1955-56. They were located in Washington, Oregon, Idaho and Utah, and were considered above average in management of inventories.

Statistical data were comparable for 9 of the 11 associations. Supply volume ranged from less than $213,000 to more than $1 million, with 6 of the 9 associations having volumes of less than $500,000.

Petroleum accounted for an average of 56 percent of total volume. It was the only commodity whose sales were reported separately by all of the associations. In four associations with detailed sales data, fertilizer made up 16 percent and farm machinery 20 percent of total volume.

Size of Inventory

Inventories ranged from a little more than $15,000 to almost $187,000 at the end of 1955-56. Three associations each had less than $50,000.

Only four associations had data on monthly inventories. Their total inventories in January were 79 percent of their 12 month's average and by March they were at a high of 121 percent.

By commodities, petroleum varied least in size over the year with only 26 percentage points difference between the high and the low amounts. Fertilizer monthly inventories fluctuated most -- from 38 to 242 percent of the yearly average.

Year-end inventories in 1956 represented about 26 percent of total assets, varying by individual associations from a low of 12 percent to a high of 39 percent.

Inventory Turnover

Turnover, based on cost of goods sold and year-end inventories, averaged 6.2 times in 1955-56, down slightly from 6.6 times in 1951-52.

Five associations maintained separate inventory and sales records on petroleum products. Their turnover of petroleum, based on total sales and average monthly inventories, was 41 times. Four associations had an average turnover of 33 times for fertilizer.

Maintenance of Stock

Responsibility for purchasing supplies was shared by managers and department heads. Purchasing was done by department heads in 8 associations with managers approving orders in 4 of the 8 and doing the purchasing in the other 3 associations.

Hardware and machinery items were least available through cooperative wholesale channels. Contacts were maintained with 3 or 4 suppliers for commodities not handled by wholesale cooperatives.

Storage space and distance from supply were considered the most important factors in determining inventory size.

Pooling, consignment, and purchase on customer orders were useful in minimizing inventories.

Inventories were taken at varying intervals -- from monthly to yearly. Pricing at cost was used by 8 associations and at the lower of cost or market by the other 3.

Petroleum items offered the most possibilities for shortages, but quantity reports and monthly inventories helped minimize losses.

Distribution Practices

Pre-season and quantity discounts, sales bonuses or commissions, and car-door deliveries were techniques used to keep inventories at a minimum.

Movement of "slow" items was helped by special sales and transfer programs sponsored by the regional wholesale cooperatives.

Suggestions for Better Inventory Management

A good job of managing inventories comes from a continuing review of practices coupled with determined efforts to make improvements. Management should appraise its inventory operations with attention directed to the following considerations:

1. Recognize your patrons' needs. - This requires keeping abreast of demands for new products and of different uses for old ones resulting from impacts of agricultural technology. It means having a grasp of the total agriculture served by your association as to type, status, and trends. To recognize patrons' needs requires farm visits and patron surveys as well as close contact with the Extension Service and its recommendations.

2. Know your merchandise. - This can be done through records or visual inspection. A combination of the two methods offers many advantages. In addition to quantity and quality of merchandise, its location and turnover are important. Review inventory periodically for items of stock to be reduced or eliminated and consider other items that might be stocked.

3. Keep adequate records. - Records of inventory and sales should be maintained by commodity groups. The degree of breakdown will vary with associations. Inventory volume and turnover rates for major commodity groups cannot be determined without detailed records.

4. Utilize facilities as fully as possible. - Effectiveness in use of storage and display facilities should be appraised frequently. A change of location or shift in size of display may be worthwhile. Mechanization should be considered and stock handling minimized.

5. Watch inventory costs. - It is expensive to carry excessive inventory. Interest, shrinkage, obsolescence, and possible price declines are the principal costs. Post-season discounts often are more economical than year-to-year carryovers. Specialty items may lead to overstocking. Consider customer orders when stocking new items.

6. Develop support of employees. - Employee performance is tied in with knowledge of job and responsibility. See that the essentials of each job are described and that each employee understands his responsibilities. Discussions with employees about inventory problems will increase their awareness of inefficiencies and opportunities for improvement. Management of inventories in present-day cooperatives is more than a one-man job.

INVENTORY MANAGEMENT BY SELECTED RETAIL FARM SUPPLY CO-OPS

(Area II - Washington, Oregon, Idaho, Utah)

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To satisfy the production needs of patrons, farm supply cooperatives must have adequate facilities and stocks of goods. This places considerable responsibility on management in securing efficient use of facility and inventory capital in addition to determining the type, quantity, and quality of commodities to handle.

The magnitude of these jobs has increased with changes in agricultural technology. The number of new and improved items including machines and accompanying power requirements plus fertilizers, commercial feeds, plant and insect controls, new building materials, and the like, have added to the problems of inventory management. Each year cooperatives must add new products and their capital requirements for inventories increase. About 25 percent of total assets are commonly required for inventory purposes. The manner in which this capital is used has much to do with operating efficiency.

PURPOSE AND METHOD OF STUDY

This study is the second in a series Farmer Cooperative Service is making of inventory management by general farm supply cooperatives in various geographic areas of the United States. It endeavors to do the following:

1. Determine purchasing policies and practices that affect inventory acquisition;

2. Ascertain successful practices for storing and controlling inventories and shrinkage in merchandise;

3. Determine principal sales methods affecting inventory turnover, especially those for slow-moving merchandise; and

4. Recommend successful standards and methods for inventory management.

A review of the inventory practices of the cooperatives selected for study should be helpful to other associations with similar overall operations.

Note: The author expresses appreciation to officials of the farmer cooperatives who provided information on their inventory operations, and to J. Warren Mather, Chief, Farm Supplies Branch, Farmer Cooperative Service, U. S. Department of Agriculture, for assistance in planning and developing this study.

This study included 11 local associations in Washington, Oregon, Idaho, and Utah. To distinguish this report from others in the series, these States are designated as Area II. These associations were affiliated with wholesale cooperatives and carried similar diversified lines of production supplies.

The associations were selected on the basis that their management of inventory operations was better than average. Criteria for judging operations included (1) inventory turnover ratios, (2) overage and shortage data, and (3) evaluation of inventory acquisition and control practices in the local cooperatives by district fieldmen and department heads of the regional associations.

General managers of the selected associations provided information for the study through personal interviews.

Comparison of various inventory measures in this area was difficult because inventory and volume figures generally were not maintained in sufficient detail. Of 11 associations contacted for inventory analysis, 9 had sufficient data to provide partially comparative statistics. Only 4 associations took inventories monthly and 1 took them semiannually and thus had adequate data by commodity groups for inventory comparisons. However, to establish measures of performance data on particular activities have been presented and comparisons made where possible.

VOLUME AND TYPE OF SUPPLIES HANDLED

Patrons' purchases in 9 associations in the Pacific Northwest with data of a comparable nature ranged from $212,870 to $1,022,623, with 6 of the 9 associations having volumes of less than $500,000 (table 1).

Table 1. - Total farm supply sales volume and proportion of total in selected commodity groups for each of nine local farm supply cooperatives 1/, 1955-56

Ass'n. code	Sales	Proportion of total supply volume by commodity groups: Petroleum	TBA 2/	Fertilizer	Machinery	Other	Total
		Percent					
2	$ 212,870	58	5	12	3/	25	100
3	328,011	67	7	3/	3/	26	100
4	372,119	79	3/	3/	3/	21	100
5	254,133	36	3/	3/	28	36	100
6	1,022,623	48	3/	33	8	11	100
7	428,681	60	3/	3/	3/	40	100
9	804,392	45	2	3/	28	25	100
10	375,814	66	3	8	3/	23	100
11	697,143	48	3	14	17	18	100
Average 4/	---	56	4	17	20	25	---

1/ In Washington, Oregon, Idaho, and Utah.
2/ Tires, batteries, accessories.
3/ Not itemized.
4/ Averages do not add to 100 percent because they are based only on those associations reporting volumes by commodities.

Petroleum accounted for better than 50 percent of total volume (figure 1). For the nine associations the proportion of total volume represented by petroleum products ranged from 36 to 79 percent. All of the associations handled petroleum and maintained separate volume figures for it. Several associations, however, did not keep sales data on major types of commodities. For instance, while all associations handled tires, batteries, and accessories (TBA), only 5 of the 9 had maintained sales volume figures for these items. For these five associations, TBA items accounted for an average of 4 percent of volume.

Only four associations maintained volume figures on fertilizer and farm machinery. These commodities accounted for 16 percent and 20 percent, respectively, of the total volume of the associations.

While most of the associations studied handled these three specific commodity groups, usually they did not maintain volume records on other commodities. These consisted of building supplies, farm machinery, fertilizer, and TBA items for some associations. They were lumped together as "other supplies" and represented a sizeable proportion of volume in this study (table 1).

INVENTORY SIZE BY COMMODITY

Of the 9 associations whose records were used in this analysis, only 5 maintained their inventory data by commodities. Inventories ranged from $15,256 to $186,724, with three of the associations having less than $50,000 in year-end inventories (table 2).

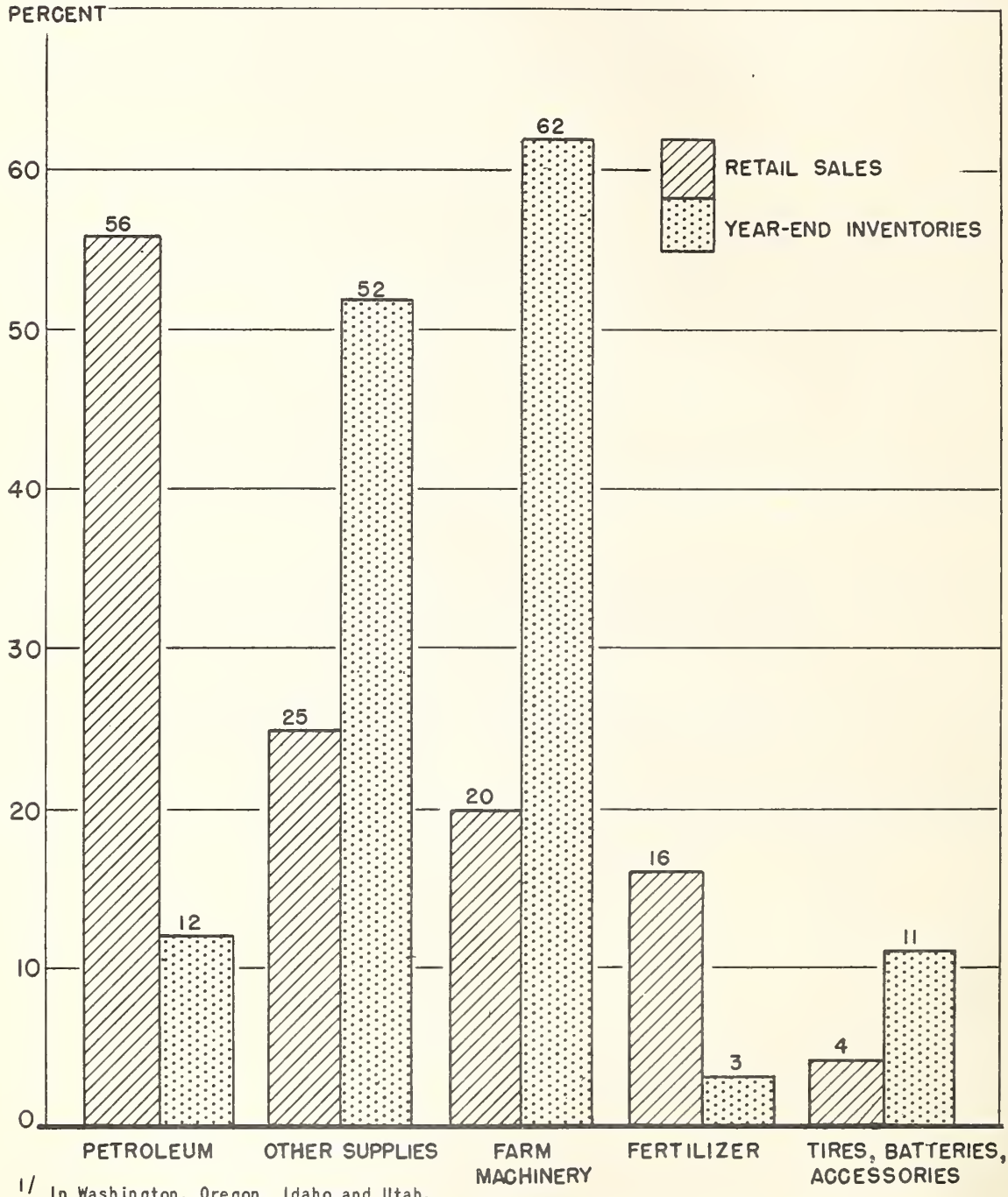
Table 2. - Year-end farm supply inventories and proportion of total in selected commodity groups in five local farm supply cooperatives 1/, 1955-56

Ass'n. code	Inventory	Proportion of supply inventory by commodity groups: Petroleum	TBA 2/	Fertilizer	Machinery	Other	Total
		Percent					
2	$ 15,256	15	14	4	3/	67	100
3	48,907	12	16	3/	3/	72	100
6	122,960	7	3/	3	67	23	100
10	24,473	21	11	5	3/	63	100
11	186,724	5	3	1	57	34	100
Average 4/	---	12	11	3	62	52	---

1/ In Washington, Oregon, Idaho, and Utah.
2/ Tires, batteries, accessories.
3/ Not itemized.
4/ Averages do not add to 100 percent because they are based only on those associations reporting volumes by commodities.

FIGURE 1

Percent of Retail Sales and Year-end Farm Supply Inventories Represented by Selected Commodity Groups,[1/] 1955-56[2/]



1/ In Washington, Oregon, Idaho and Utah.

2/ Associations reporting data: Petroleum and other supplies, 9; tires batteries, and accessories, 5; fertilizer and farm machinery, 4.

In the 5 associations, petroleum averaged 12 percent of year-end inventories (figure 1). In 1 association it amounted to only 5 percent of total inventories, but this association had the largest total inventory. Where petroleum accounted for the highest proportion of inventory -- 21 percent -- this association had next to the smallest total inventory, $24,473. Only four associations kept separate records on TBA items. They averaged 11 percent of total inventories. Four associations reported fertilizer separately, and it accounted for an average of 3 percent of total inventory.

Only 2 associations maintained separate inventory records for farm machinery, and in them machinery represented 62 percent of total inventories at year-end. In association No. 6, where inventory of machinery represented 67 percent of total inventory, machinery sales represented only 8 percent of total sales volume. In association No. 11, machinery represented 57 percent of total inventory and 17 percent of total sales.

MONTHLY INVENTORY FLUCTUATIONS

Only four associations had complete enough inventory information to trace fluctuations by months over an entire year. Inventories were broken down into six commodity groups with the remainder classed as "other."

For individual commodities pertroleum ranged from a low of 85 percent to a high of 111 percent of the 12-month average inventory in 1955-56 (table 3). The low month was in October and both March and September were high inventory months. Three of the 4 associations had monthly records on TBA items that ranged from a low of 70 percent to 117 percent of the monthly average for the year. The low was in April and the high was in November. Two associations maintained seed and feed monthly inventories. They varied in size from 28 to 160 percent of the yearly average with a low in December and a high in April.

For fertilizer all four associations had monthly inventory figures. Inventories fluctuated from a low of 38 percent of yearly average in January to a high of 242 percent in March, with relatively high months also in April and May. Machinery inventories were available in 2 associations for 11 months of the year. They ranged in size from 76 percent of average in February to a high of 107 percent in November. May and June inventories were 106 and 105 percent of average, respectively. Three associations maintained hardware item inventories separately. Their low was in December with 83 percent of average, and their high of 119 percent was in May.

Fluctuations for total inventories by months went from a low of 79 to 121 percent of the year's average. Lowest inventories were in January and highest were in March. April and May also were high, averaging 118 and 114 percent, respectively.

PROPORTION OF ASSETS IN YEAR-END INVENTORIES

Table 4 shows that inventory is a heavy user of capital. At the end of the associations' 1952 fiscal year, total inventory averaged about 28 percent of total assets. For individual associations, inventories represented from about 16 to 47 percent of assets. In 1956, inventories represented just over 26 percent of total assets; they varied from a low of 12 percent of a high of 39 percent for individual associations.

Table 3. - Monthly inventory variation shown as a percentage of 12-month average in four local supply associations 1/, 1955-56 (Twelve-month average for each association equals 100 percent).

Commodity	No. of ass'ns.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Range	
														Low	High
		Percent												Percent	
Petroleum	4	92	109	111	103	93	93	100	108	111	85	106	89	85	111
TBA 2/	3	74	78	72	70	114	112	109	110	120	114	117	110	70	120
Seed and feed	2	104	76	141	160	159	88	114	110	61	89	70	28	28	160
Fertilizer	4	38	111	242	153	153	62	65	78	81	91	82	44	38	242
Machinery	2	3/	76	102	103	106	105	104	98	97	101	107	101	76	107
Hardware	3	89	84	96	99	119	115	105	106	106	104	94	83	83	119
Other	2	78	125	87	140	56	120	57	70	113	100	130	124	56	140
Average	---	79	94	121	118	114	98	93	97	98	97	100	100	79	121

1/ In Washington, Oregon, Idaho, and Utah.
2/ Tires, batteries, accessories.
3/ Data not available.

Table 4. - Inventory turnover 1/ and proportion of total assets in inventory in selected farm supply cooperatives 2/ for fiscal years ending in 1956 and 1952.

Ass'n code	Turnover		Proportion of assets in year-end inventory	
	1956	1952	1956	1952
	Times per year		Percent	
2	11.7	13.5	21.0	22.0
10	10.3	8.8	11.8	16.5
6	7.2	7.6	23.5	19.6
4	5.7	6.7	18.8	17.6
3	5.3	8.2	25.2	19.7
9	4.9	4.8	25.7	26.5
7	4.0	2.8	39.3	47.5
5	3.4	3.1	36.1	43.9
11	3.0	4.2	35.9	35.7
Average	6.2	6.6	26.4	27.7

1/ Based on cost of goods sold and year-end inventories.
2/ In Washington, Oregon, Idaho, and Utah.

INVENTORY TURNOVER

A common measure of inventory management is the number of times inventory turns in a year. If the rate was 12 times, it had turned once a month. Also, this means that 30 days' supply of merchandise was carried in stock based on 360 days a year, or 25 days' based on 300 selling days a year.

Inasmuch as information on cost of goods sold was not available by commodity groups, inventory turnover for individual commodity groups was calculated on the basis of total sales and average monthly inventories.

Turnover of petroleum was high, averaging 41 times in 1955-56 with a low of 28 and a high of 46 times (table 5 and figure 2). Fertilizer turnover was high also, averaging 33 times in 4 associations. In the TBA group, turnover averaged four times. Data for farm machinery turnover were available in two associations. Such inventories were sold only once a year. Hardware items were turned three times. Total inventories of the 5 associations turned an average of 9 times in 1955-56. The turnover range was from 4 to 14 times.

In calculating inventory turnover, it is more accurate to use cost of goods sold because inventory amounts are generally carried at cost. Based on total sales, the turnover would be high by the amount of the markup or gross margin.

In the 1952 fiscal year, 9 associations' inventories averaged a turnover of 6.6 times based on the cost of goods sold and year-end inventories (table 4). The turnover for individual associations ranged from a low of 2.8 to a high of 13.5. For the 1956 fiscal year, the average turnover had declined to 6.2 percent. The range was from 3 to 11.7 times a year.

Table 5. - Inventory turnover for selected commodity groups in five local farm supply cooperatives 1/, 1955-56 2/

Ass'n. code	Commodity Groups					
	Petroleum	TBA 3/	Fertilizer	Machinery	Hardware	Total
	Times per year					
2	41	5	16	4/	4/	11
3	42	3	4/	4/	2	6
6	46	4/	56	1	3	9
10	46	5	23	4/	5	14
11	28	4	39	1	2	4
Average	41	4	33	1	3	9

1/ In Washington, Oregon, Idaho, and Utah.
2/ Based on total sales and average monthly inventories.
3/ Tires, batteries, accessories.
4/ Not itemized.

The data in table 4 are arrayed by inventory turnover for 1956. The associations with higher turnover generally have a smaller proportion of assets in year-end inventories. The four associations with highest inventory turnover, averaging 8.7 times, had an average of 18.8 percent of assets in inventory. By comparison, the four associations with the lowest turnover, an average of only 3.8 times, had 34.2 percent of assets in inventories -- almost double the proportion of the associations with highest turnover.

The 5 associations with the more detailed breakdown of volume by commodities averaged a turnover of 7.5 times compared to 5.8 for the other 4 associations in 1955-56.

INVENTORY COSTS

Management studies have estimated the cost of carrying inventories at 10 percent a year. The estimate includes an interest charge of 6 percent plus insurance, taxes, shrinkage, and obsolescence. On this basis, inventory costs amount to $140 annually for each 5 days' supply of inventory in an association with $100,000 of sales a year.

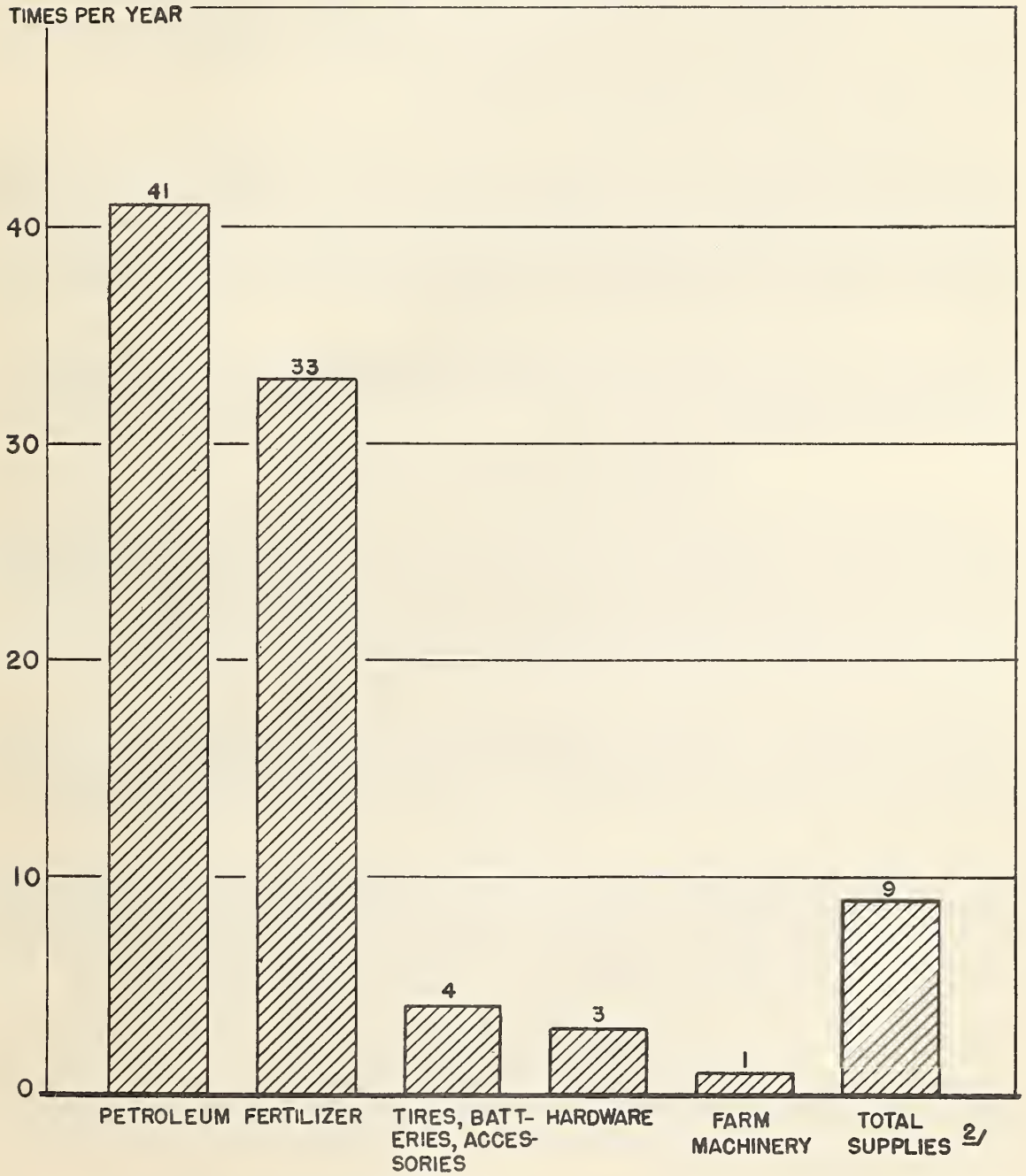
In terms of turnover, 5 days' supply of inventory would mean it was turned 72 times a year; 10 days would mean a turnover of 36 times; 15 days, 24 times; 20 days, 18 times; and 30 days, a turnover of 12 times a year.

An association with a turnover of 6 times would have about a 60-day inventory on hand. The cost of this size inventory for $100,000 of sales would be about $1,680.

A recognition of the costs connected with low turnover should induce efforts to improve inventory operations.

FIGURE 2

Inventory Turnover for Selected Farm Supplies by Five Local Co-ops,[1] 1955-56 Based on Sales and Average Monthly Inventories



1/ In Washington, Oregon, Idaho and Utah.
2/ Includes unclassified supplies.

ACQUISITION OF INVENTORIES

Wise purchase of farm supplies with special attention to kind and amount eliminates many inventory problems. Some procurement practices of the 11 cooperatives in this study are described briefly.

Responsibility for Purchasing

Managers in 2 associations and an assistant manager in another were responsible for all purchases, while department heads in 4 associations did the purchasing with manager approval. Department heads did all the purchasing in the other four associations.

In 10 associations managers' decisions were the most important factor in determining new lines of supplies to carry. Next in importance were actions of directors and advice from wholesale cooperatives. Requests of individual patrons and surveys of members also were considered in selecting new stock items. A "want book" of items requested by patrons helped determine if the "wants" justified being stocked.

The time for re-ordering regular inventory items was mostly determined by visual inspection, although inventory cards were used for gasoline and farm machinery parts.

Source and Amount of Supplies

The proportion of supplies purchased through cooperative wholesale channels varied by type of commodity and by associations. Hardware and farm machinery were the items most often not available through cooperative channels. One association purchased hardware items from 10 different firms. Most of the associations maintained contact with from 3 to 6 suppliers for commodities obtained outside of cooperative channels.

There was seldom any reported duplication of inventory items because of purchases from more than one supplier. Tires, batteries, and some minor farm supplies were the only items on which more than one quality level was carried.

Next to the minimum-maximum principle that affected nearly all items, the factors most important in determining size of inventory were storage space and distance from supply. Petroleum inventory was reported as that most restricted by available storage space. Farm machinery and petroleum inventories were the only ones reported restricted by limited capital.

Procurement Methods

Methods of procurement thought useful in minimizing inventory included (1) pooling with another cooperative, (2) consignment buying, and (3) purchase on customer order.

Pooled buying was done on TBA items (tires, batteries and accessories), steel, hardware, feed, and farm machinery. Two or three adjacent locals shared a pooled car. Items handled on a consignment basis were steel, fertilizer, and farm machinery. Commodities bought on customer order included fertilizer, farm machinery, and hardware not regularly stocked.

INVENTORY CONTROL

Stock control has two aspects: First, the keeping of adequate records and, second, the care of physical stock.

Inventorying

Physical inventories were taken once each year in two associations and twice a year at another. The other associations used a combination of weekly to yearly intervals, varying by commodity. Petroleum inventories were usually taken monthly. One association used a cyclical system in which items were counted twice a year but inventorying was carried on throughout the year. Duplicate copies of inventory recrods were made at three associations.

In six associations all employees assisted in inventorying. Personnel were responsible for inventory in their own departments in two associations. Inventorying was a full-time job at three cooperatives as no patron business was done while inventory was taken.

Inventories were priced at cost in 8 associations and at the lower of cost or market in the other 3. An exception was made in one association pricing at cost. It priced slow-moving items at the lower of cost or market. Pricing at cost was reported to be the easiest method because the price could be read from the codes placed on items at time of purchase from the supplier.

Pricing of inventory was done by managers in 4 associations with assistant managers and department heads doing it at the other 7. Directors helped take inventory at only one association.

Shrinkage

Shortages in stock are a problem in many supply operations. Theft is only one explanation of shortages. Improper receiving, inventorying, and distributing activities may cause them. Sometimes an item reported short is still in stock under another name or at a different location.

Petroleum items caused the most shrinkage headaches. Here both physical and handling factors contributed to inventory differences. Temperature changes and leaky containers combined with improper recording and measuring gave many chances for differences in book inventory and actual inventory.

Shrinkages were controlled by some associations by using quantity reports and monthly inventories. One manager also stressed the importance of having the display area under observation.

Each association had control procedures for withdrawing items from stock for internal use. Some used regular sales slips, and others used a transfer or requisition form to make certain that accounts were kept on the use of stock.

MOVING STOCK

The final function in handling stocks of farm supplies is getting them from the cooperative to the patrons. The means of accomplishing this have much to do with inventory size and turnover.

Distribution Methods

Selling or delivery methods helping to keep inventories at a minimum compared to sales were (1) seasonal price reductions or special quantity discounts, (2) employee sales bonuses or commissions, (3) car-door deliveries, and (4) pre-season sales or early delivery programs.

Commodities given seasonal discounts were fertilizer, TBA, and hardware items. Sales bonuses and commissions were allowed on all items in some associations but only on petroleum in others. Car-door deliveries were made on steel and fertilizer. Pre-season sales or early delivery programs covered wire, fertilizer, twine, and some farm machinery.

Other techniques considered effective were making personal sales efforts at the farm by an association fieldman and giving diligent attention to servicing items distributed by the cooperative.

Slow-Moving Items

Items may be purchased at the wrong time or in excessive amounts. They may be new to patrons or unsuited to patrons needs. Regardless of specific reasons, some stock items may not move as fast as desired or even move at all.

Efforts to spot slow items included review of inventory records, visual inspection, and a check of the codes on items showing date of purchase and name of supplier. One manager was wary about stocking specialty items.

Special sales helped nine associations move slow items. Hardware was the principal trouble-maker. Selling prices were low, varying from cost to a markdown of 50 percent. One association maintained a bargain table all the time and still held an annual sale. At another, sale items were not included in figuring patronage refunds.

Five managers stated that their regional wholesale cooperatives had given them assistance in handling slow-moving items. Managers in one area held "swap" sessions at district meetings. Regional cooperative personnel arranged for transfers of stock between associations, thus helping with slow-moving and other problem items as well. Commodities shifted from one association to another were baler twine, 2-4-D insecticides, machinery parts, and heavy hardware or farm machinery items.

Turnover Improvement

In associations where turnover had improved, credit for improvement was given to the following factors: (1) Better displays with emphasis on location, larger variety of items, and housekeeping; (2) determined efforts to watch stock; (3) radio and newspaper advertising; and (4) improved employee morale. One manager liked a mass display, combining both display and storage stock at one location.

WAREHOUSING AND DISPLAY FACILITIES

Both storage and display facilities are important inventory considerations. Storage space may be a limiting factor in the number of items stocked or, conversely, it may be a contributing factor to excessive inventories and low turnover.

Seven associations regularly used open storage areas. At one association a front sidewalk area was used for display during the spring and summer season, and many sales were attributed to it.

Existing covered storage areas were considered satisfactory at all but two associations. Areas varied in size from 2,100 to 21,000 square feet. Associations with the smaller areas had a high proportion of sales in petroleum products.

Display areas ranged in size from 1,000 to 9,000 square feet. Facilities were considered adequate at three associations. Restricted display area was the most common complaint. The manager with 9,000 square feet of display area considered 6,000 square feet sufficient. One manager objected to the many windows in his building because they limited shelf space.

Three associations used fork lifts and pallets. One reported that it had been handling fertilizer manually five times, but after acquiring pallets handling was reduced to a single time.

ASSISTANCE BY REGIONAL COOPERATIVES

Regional associations influenced inventory management in local associations in several ways. Assistance with advertising displays was most widely given, followed by help in determining new stock to carry. Recommendations by regionals on improved inventory practices and selling techniques were also considered helpful to local cooperatives. One association's representative emphasized the extent of help from regionals to locals when he compared the reduced services provided by a new fieldman just getting started to the services provided by a former fieldman who had been transferred.

AREA COMPARISONS

Table 6 shows measures of inventory operations for three areas in which inventory studies have been made to date. These are not entirely comparable, however, because data were not available for sales and inventories of indentical groups of commodities and for inventories at the same intervals or frequency during the year. (See footnotes to table 6).

Table 6. - Measures of inventory operations in retail farm supply cooperatives in three areas of the United States 1/

Item	Area I 2/	Area II 3/	Area III 4/
		Percent	
For 5-year period studied 5/			
Increase in farm supply sales	12	20	30
Increase in farm supply inventories	12	12	28
For last year of study 5/			
Percent of total assets in inventories at end of year	18	26	20
Inventory turnover 2/ 3/ 4/		Times per year	
Feed	20	6/	12
Seed	8	6/	12
Fertilizer	23	33	4
Petroleum	23	41	15
Building supplies	4	6/	6/
Farm machinery	3	1	6/
Tires, batteries, accesories	6/	4	2
Hardware	6/	3	6/
Other supplies 7/	6	5	2
Total	11.4	3/ 9.0	4/ 6.1
		Number	
Associations in each study	11	9	20

1/ States by areas as follows:
Area I - Indiana, Ohio, Michigan, and Pennsylvania.
Area II - Washington, Oregon, Idaho, and Utah.
Area III - Wisconsin, Minnesota, North Dakota, South Dakota, and Northern Iowa.

2/ Area I turnovers are based on annual sales and average quarterly inventories.

3/ Area II turnovers for individual commodities are based on total sales and average monthly inventories for 5 associations. Data on cost of sales and year-end inventories resulted in an inventory turnover on total supplies of 6.2 times in 1956, for 9 associations.

4/ Area III turnovers for individual commodities are based on cost of goods sold and year-end inventories. On the basis of sales, the total inventory of all supplies turned 7.7 times in 1956.

5/ Period covered in Areas I and II was for fiscal years ending in 1952 and 1956. Period covered in Area III was for calendar years ending in 1952 and 1956.

6/ Data were not available; included in "other supplies."

7/ Items in this group are not comparable in each area.